January 15, 2018

Via FCC Electronic Comment Filing System

Marlene H. Dortch
Office of the Secretary
Federal Communications Commission
445 12th Street SW, Room TW-A325
Washington, DC 20554

Re: False Wireless Emergency Alerts and Emergency Alert System (PS Docket No. 15-91 and 15-94).

Dear Marlene H. Dortch:

I would like to comment on the recent false missile alert in Hawaii on January 13, 2018, and other challenges of State, Local, Territorial and Tribal officials face issuing timely, accurate alerts.

The State of Hawaii Emergency Management Agency is one of the best in the nation. HI-EMA responds to a wide-variety of disasters every month. Nevertheless, when a mistake occurs it's important for all federal, state, local, territorial and tribal emergency management agencies nationwide learn from those mistakes. Because the Hawaii Emergency Management Agency has not completed its after-action review and published its report, these comments are based on on-going and historical issues with the Emergency Alert System, Wireless Emergency Alerts and past incidents.

If you have any questions concerning these comments, please do not hesitate to call (703-892-1810) or email (sean@donelan.com) me.

Respectfully submitted,

Sean Donelan

Enclosure

Re: False Wireless Emergency Alerts and Emergency Alert System (PS Docket No. 15-91 and 15-94).

1. Relationship of Public Alerts and Warnings at the Federal, State, Local, Territorial and Tribal Level

Mistakes with public alerts and warnings are the responsibility from the top of the Federal Communications Commission down to the lowest operator on duty in a warning center who pushes a button or clicks a mouse. Vern T. Miyagi, the Administrator of Emergency Management for the State of Hawaii, and retired U.S. Army major general, knows the importance of leadership for taking responsibility and fixing problems; not making lawyerly statements trying to shift blame to others.

At the national level, the public alert and warning systems are a joint responsibility of the Federal Communications Commission, Federal Emergency Management Agency and the National Weather Service. As appropriate in a federal-state partnership, the FCC, FEMA and NWS take a very hands-off approach to public alerting and warnings at the state, local territorial and tribal approach. However, that hands-off approach should not mean neglect by federal agencies. The lack of a published national emergency alert and warning plans and guidance often means lessons must be learned separately by each locality. Since the U.S. population travels more now than any time in history, inconsistent state and local alerting procedures can lead to public confusion at local variations in alerting and warning messages. For example, national guidance from the U.S. Department of Transportation and State Highway Officials on consistent road signs helps both local drivers and visitors traveling across the country.

Historically, the FCC has issued rules and regulations for the Emergency Alert System and Wireless Emergency Alert system, but avoided participating in EAS and WEA in an operational role or answering operational questions.

2. Statistics about the use of Public Alert and Warning Systems

The FCC no longer collects data about EAS or WEA alert activations and has fewer staff how the Emergency Alert System or Wireless Emergency Alert system is being used nationwide. FCC does collect data about the annual National Periodic Test (NPT). FEMA collects some data on the Integrated Public Alerting and Warning System (IPAWS) and the National Weather Service collections some data on weather and other warnings issued via Weather Radio.

EAS (broadcasters, cable systems, satellite video and audio providers) and WEA (cellular providers) conduct extensive tests and distribute many alerts every year. Testing is important for training and confirm the public alert and warning systems would work during an emergency. The best time to find problems is before, not during or after, an actual emergency.

Type of Alert (Source)	Number of alerts during 2017
EAS Participant testing (estimate from FCC Paperwork Reduction Act filing)	3,276,000 (EAS – RWT and RMT) estimate

Weather warnings (NWS)	34,020 (WEA) – 100% polygon targeted 100,000 (EAS) estimate
State/local warnings (State/local EMAs), includes some Amber alerts sent by state law enforcement instead or in addition to NCMEC	289 (WEA) – 43% polygon targeted Unknown (EAS)
Amber Alerts (NCMEC)	168 (WEA) – 0% polygon targeted
EAS national test (FEMA)	1 (EAS/IPAWS)

There is no FCC requirement for State, local, territorial or tribal authorities participate or train on using the Emergency Alert System or Wireless Emergency Alert System. The FCC does not provided oversight of state or local government agencies using EAS or WEA. During the cold-war the FCC assisted the creation of State Emergency Communication Committees (SECCs) of broadcasters. FEMA encourages SLTT to use the Integrated Public Alerting and Warning System (IPAWS) with some trivial online training. The National Weather Service has local weather forecast offices, and conducts a lot of outreach with local officials about weather issues. But the NWS generally does not include civil defense warnings as part of its mission.

Because there is no published national public alerting and warning plan or guidance, there are many gaps and misunderstandings about what EAS codes would be used, who issues which kind of alerts, and how the overall system should work. For example, during the Hawaii missile alert, HI-EMA used the Civil Danger Warning (CDW) event code. Some EAS broadcasters and cable systems may or may not have configured their EAS systems to recognize it. In an actual emergency, they may or may not have relayed an alert.

There is a wide-variation of participation by different states and territories emergency management agencies. In some states, generally those with frequent natural disasters, there is a close and active relationship between emergency management agencies, industry and community organizations. Other states face challenges finding resources for emergency management or do not regularly face the same types of disasters.

3. Challenge of Timely Alerts or What Does “Immediate” Mean?

The FCC has avoided answering the question “What does immediate mean?”

The FCC requires EAS and WEA participants immediately distribute some alerts, but how quickly is immediate? And does too fast make it more likely a mistake or false alert to slip through the process. But too slow make it more likely a real alert won’t be sent in time? If a missile threat may impact in 15 minutes, if EAS equipment delays a message for 15 minutes, would be too long? On the other hand, if EAS equipment relays a false message in less than a second before an operator could check it, would be too fast?

While false alerts may cause public annoyance and confusion, people seldom die because of a false alarm. The challenge of issuing timely alerts is a bigger problem. Solving the false alert problem by adding lengthy confirmation and administrative procedures creates a new problem – a real alert may not be issued in time. Of course, the goal is zero errors in both cases.

For example, during the Gatlinburg, Tennessee, wildfires in November 2016, local officials requested the Tennessee Emergency Management Agency send a Wireless Emergency Alert message. However, the administrative procedures in place at TEMA resulted in the message not being sent because TEMA was waiting for local officials to confirm the text of the message. TEMA has not released its after action review of the wildfire over 14 months later. No one can know if the lack of timely alert played a role or could have reduced the number of deaths.

News reports about the Hawaii false alert indicate part of the reason for the delay sending the "false alarm" message 38 minutes later was obtaining administrative approvals. If the reverse happened, taking 38 minutes to get administrative approval to send an alert about an actual missile threat would be even worse. When the final after action review and report is published that should be one of the questions answered.

Timely alerts require delegating some authority to the operators on duty at warning centers. Requiring department or political approvals before issuing alerts – weather alerts, wildfire alerts, and even missile threat alerts – likely would slow down the entire alerting process. But there is no national guidance on how long it should take – one minute, five minutes, 20 minutes? For example, different alerts and different geo-targeting could require different levels of approval and review. Local alerts may need only one person at a local agency or National Weather Service meteorologist on duty, statewide alerts may need two people at the state warning center, national alerts may require two different warning centers.

Without a published set of national requirements and a published national plan, no one knows how fast is too fast or too slow. Alert software developers don't know what checks are needed in their systems. User interface designers don't know what conditions to test.

4. Challenge of Trivial Alerts

A warning of a ballistic nuclear missile is one of the most critical uses of the public alert and warning systems. However, the same public alert and warning systems are used for a wide-variety of natural disasters and warnings. The public has different tolerance levels for different types of public alerts transmitted through different warnings systems. While the public may tolerate a rare false alert on some warning systems; they may not have the same tolerance when recurring trivial alerts interrupts and annoys them.

The FCC indicates the Wireless Emergency Alert System should be used for alerts involving imminent threats to safety or life. But provides state and local officials almost no guidance or training on when or why to use WEA or EAS.

Many localities use a combination of social media, tweets, texts, telephone notifications for a wide variety of public information. Some also use sirens, highway signs, EAS and WEA for public warnings. Sometimes the information is about emergencies and life-threatening events. Other times the information is about leaf pickups, local road closings and administrative announcements. Integrated public warning systems make it easy for local officials to quickly keep the public informed. But the convenience may also lead to using those same systems inappropriately. The public may appreciate a tweet the local garbage collection pickup day changed, but does not appreciate a WEA alarm at 3 a.m. with the same information.

The solution is not requiring two different systems. Lack of familiarity with a separate system would slow down or deter local officials from using the warning system when they should. There are advantages to integrated public information and public warning systems. Multiple systems cost more and require more resources to maintain.

Better guidance for state and local alerting officials when and why different public alert and warning systems should be used may be helpful to reduce public annoyance and confusion. The FCC, FEMA and NWS should review host state and local officials actually use public alert and warning systems. Oversight doesn't mean punitive actions. State and local emergency managers care a lot about their communities and want to do the best job possible. But without guidance and a resource they could ask, they might have inaccurate ideas how to use warning systems.

Recurring trivial alerts are a more likely reason why the public becomes annoyed and turns off alerts on cell phones and unsubscribes from notification systems instead of a rare false alert.

5. Challenge of False Alerts

In 1990, Mileti and Sorensen reviewed how the public reacts to false alarms and emergency managers wanting to avoid public "panic" … or the loss of credibility resulting from a false alarm. The study found these are recurring concerns, but rarely prove to be valid.

> "The public would rather be safe than sorry. People tolerate false alarms if there is a valid scientific rationale for the warning and the 'miss.' For example, the public has been tolerant of hurricane warnings, for which there is an evacuation-warning false alarm rate of 70%. People subject to this hazard are willing to evacuate needlessly 70% of the time to ensure that they will avoid staying when evacuation is needed. The bottom line is, when in doubt, warn. The consequences of being wrong are more severe if a disaster occurs when there has been no public warning than if a disaster does not occur after warning. In addition, even

> if an official warning is not issued, unofficial ones are likely to be made as information about the risk becomes available to the press and the public."[1]

The Center for Survey Research & Analysis at the University of Connecticut studied the public reaction to the false evacuation warning in Connecticut on February 1, 2005.

> "Despite the lack of response to the emergency broadcast, the vast majority of all Connecticut residents (77%) said that the erroneous February 1st alert had no real effect on their faith in the Emergency Broadcast System."[2]

After the Connecticut false evacuation alert, state emergency management officials removed the evacuation code from the system. Removing the code solved the false evacuation alert problem. But now the state EMA has a different problem. It couldn't issue a real evacuation alert, without a delay reprogramming its system to add the code again.

False alerts should be minimized, and used as learning opportunities. If an actual emergency occurred, broadcasters, news sites, sirens, multiple levels of government, etc. would react and confirming alerts issued by each other. Other false alerts include a single broadcast station in California transmitting an EAN, a national syndicated radio program playing recordings of an EAN data tones, outdoor sirens in Dallas sounding repeatedly for several hours, and so on.

Although it took 38 minutes for the official public cancellation WEA message, news stations were already reporting and other officials were already tweeting the alert was a false alarm. The independent cross-confirmation between civilian, military and broadcasters worked, but could be improved.

6. Challenge of Human Factors

While written about a different incident, Donald Norman's comment about blaming operator error is evergreen:

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[1] Mileti, D. and Sorensen, J. "Communication of Emergency Public Warnings." (1990). http://www.cires.org.mx/docs_info/CIRES_003.pdf

[2] Center for Survey Research & Analysis, University of Connecticut. "Connecticut Emergency Broadcast System Survey: Public Reaction to the Erroneous Statewide Broadcast of February 1st, 2005." https://www2.gwu.edu/~icdrm/publications/CT%20Emergency%20Broadcast%20Final%20Report.pdf

> "The most serious RISK in all this is that people take the easy way out, blame the operator for incompetence, and then smile smugly from their air-conditioned office, far away from the plant. As long as this attitude persists, we will have bigger and bigger accidents."[3]

The role of the human in systems is much too complicated for a short comment. I recommend the Commission read the following books on the subject.

Dekker, S. (2002). The Field Guide to Human Error Investigations.

Hallinan, J. (2009). Why We Make Mistakes: How We Look Without Seeing, Forget Things in Seconds, and Are All Pretty Sure We Are Way Above Average.

Vicente, K. J. (2003). The Human Factor: Revolutionizing the Way People Live with Technology.

[3] Norman, D. "Proper understanding of the "The Human Factor."" RISKS mailing list (Dec. 11, 2003). http://catless.ncl.ac.uk/Risks/23.07.html#subj10